AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): A self-pulsation type semiconductor laser comprising a first clad layer of a first conductivity type, an active layer, and a second clad layer of a second conductivity type having a striped ridge portion, successively stacked on a semiconductor substrate of the first conductivity type,

wherein a saturable absorption layer of a semiconductor is ~~provided~~ epitaxially grown on a ~~material~~ semiconductor layer having a refractive index equal to or greater than that of said second clad layer and not absorbing laser light, within an embedding layer formed on either side surface of said ridge portion and on either flat portion other than said ridge portion in said second clad layer.

Claim 2 (original): The self-pulsation type semiconductor laser according to claim 1, wherein said saturable absorption layer includes a quantum well structure.

Claim 3 (original): The self-pulsation type semiconductor laser according to claim 1, wherein said saturable absorption layer is sandwiched between two semiconductor layers having their respective bandgaps greater than a bandgap of the saturable absorption layer.

Claim 4 (original): The self-pulsation type semiconductor laser according to claim 3, wherein one of the two semiconductor layers sandwiching said saturable absorption layer, located farther from the ridge portion, has a refractive index smaller than that of said second clad layer.

Claim 5 (original): The self-pulsation type semiconductor laser according to claim 1, wherein at least one of upper and lower sides of said saturable absorption layer is covered with a semiconductor layer having the same composition as that of said second clad layer.

Claim 6 (original): The self-pulsation type semiconductor laser according to claim 1, wherein a current blocking layer of a material absorptive to the laser light is formed on an opposite side of said saturable absorption layer as seen from said second clad layer.

Claim 7 (original): The self-pulsation type semiconductor laser according to claim 1, wherein a current blocking layer of a material having a refractive index smaller than that of said second clad layer and not absorbing the laser light is formed on an opposite side of said saturable absorption layer as seen from said second clad layer.

Claim 8 (original): The self-pulsation type semiconductor laser according to claim 1, wherein said active layer includes an SCH structure having a light emitting layer sandwiched between two light guide layers, and has an asymmetrical structure in a stacking direction of the layers so that light can spread toward the ridge.

Claim 9 (original): The self-pulsation type semiconductor laser according to claim 8, wherein said light guide layer on the second clad layer side is greater in thickness than said light guide layer on the first clad layer side.

Claim 10 (original): The self-pulsation type semiconductor laser according to claim 8, wherein said second clad layer has a refractive index greater than that of said first clad layer.

Claim 11 (original): The self-pulsation type semiconductor laser according to claim 1, wherein said self-pulsation type semiconductor laser is an AlGaInP-based laser, said substrate is of GaAs, and said saturable absorption layer is formed of an AlGaAs-based semiconductor.

Claim 12 (original): The self-pulsation type semiconductor laser according to claim 11, wherein an AlGaAs layer having a refractive index greater than that of said second clad layer is formed on the under surface of said saturable absorption layer, the AlGaAs layer having an Al composition ratio set in a range of 0.4–0.6, and a GaAs layer is formed on the upper surface of said saturable absorption layer.

Claim 13 (original): The self-pulsation type semiconductor laser according to claim 11, wherein an AlGaAs layer having a refractive index greater than that of said second clad layer is formed on the under surface of said saturable absorption layer, the AlGaAs layer having an Al composition ratio set in a range of 0.4-0.6, and an AlGaAs layer having an Al composition ratio set to exceed 0.6 is formed on the upper surface of said saturable absorption layer.

Claim 14 (original): The self-pulsation type semiconductor laser according to claim 1, wherein said embedding layer is formed in a striped ridge shape.

Claim 15 (original): The self-pulsation type semiconductor laser according to claim 14, wherein an insulating film is formed on said ridge-shaped embedding layer.

Claim 16 (original): The self-pulsation type semiconductor laser according to claim 15, wherein in an AlGaInP-based self-pulsation type semiconductor laser formed on a GaAs substrate, an AlGaAs layer having a refractive index greater than that of said second clad layer is formed on

the upper surface of said saturable absorption layer within said embedding layer, the AlGaAs layer having an Al composition ratio set in a range of 0.4-0.6 and being formed in a ridge shape, and said insulating film is formed on the AlGaAs layer.

Claim 17 (original): The self-pulsation type semiconductor laser according to claim 1, wherein a plurality of semiconductor lasing parts having different lasing wavelengths are formed monolithically, and said plurality of semiconductor lasing parts each have said embedding layer including said saturable absorption layer formed of a same semiconductor material.

Claim 18 (original): The self-pulsation type semiconductor laser according to claim 17, wherein an AlGaAs-based semiconductor lasing part and an AlGaInP-based semiconductor lasing part are formed monolithically into a two-wavelength semiconductor laser, and said saturable absorption layer is formed of an AlGaAs-based semiconductor.